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FOREST INSECT INVESTIGATIONS

SUMMARY OF  
INSECT SURVEYS OF THE WHITE PINE STANDS OF THE  
COEUR D'ALENE NATIONAL FOREST

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COEUR D'ALENE NATIONAL FOREST

INTRODUCTION

As a result of information obtained by a survey<sup>(1)</sup>, artificial control measures were conducted within the Coeur d'Alene National Forest during the spring of 1929 for reduction of an outbreak of the mountain pine beetle (Pendroctonus monticolae) in the Steambent drainage of the Coeur d'Alene River<sup>(2)</sup>. At the time this project was planned it was felt that conditions within adjacent drainages might prove to be as serious as those within the contemplated control area, but at that time a more extensive examination could not be made. To secure definite information relative to this possibility a red-top (1928 attacks) reconnaissance was conducted within a large portion of the Forest during the month of July, 1929. This survey was made by Messrs. Terrell and Furness of the Bureau of Entomology under the direction of Mr. J. C. Evenden, Forest Insect Field Station, Coeur d'Alene, Idaho<sup>(3)</sup>.

Due to the size of the area to be covered by this reconnaissance, and the time available for the work, it was necessary that it be very extensive in character. However, the data which were secured showed very clearly the severity of the situation which now exists within the Coeur d'Alene National Forest.

- (1) Gibson, A.L. "Insect Survey of the East Fork of Steambent Creek", Nov. 22, 1928.
- (2) Evenden, J.C. "Plan of Operation for Control of Mountain Pine Beetle Outbreaks in White Pine", Feb. 16, 1929, and Crossley, Ess. "Forest Insect Control Project, Coeur d'Alene National Forest Report for the Season of 1929", March 1, 1930.
- (3) Evenden, J.C. "Mountain Pine Beetle Infestation in the White Pine Stands of the Coeur d'Alene National Forest", Aug. 16, 1929.



As a result of this survey it was very evident that additional work was necessary in order to secure data as to the severity of the 1929 attacks. To secure this information Mr. Ferrell spent the month of September in making a new-attack survey of these areas. For the purpose of bringing all data together the substance of the material submitted at that time is included in this report.

#### JULY RED-TOP SURVEY

The purpose of this survey was to secure more accurate knowledge of the status of the mountain pine beetle within the white pine stands of the Coeur d'Alene Forest. As this survey was conducted during July, and at a time when there was no foliage discoloration of the 1929 attacked trees, it was necessary to limit the data secured to the 1928 infested trees which appeared as red-tops at that time. Data secured from surveys of this character consist of the number of trees killed the previous year, and their approximate location within each drainage. These red-top trees are counted from all possible vantage points and the number and location recorded on a large-scale map. Though trees occurring in small groups can be easily counted, difficulty is experienced in determining the actual number of red-tops which occur in larger groups. This condition can be overcome to a large extent by intensively cruising several small areas after the red-tops have been counted from a distance and applying the correction factor thus obtained to all of the data secured.



The severest criticism which can be offered against the practice of red-top surveys is that the data secured are always one year behind the current year's infestation, which is a handicap in planning for the institution of control. This objection is met by correcting the data secured with an estimate of the increase or the decrease in the infestation which is based upon the condition of the overwintering broods within the red-tops. Red-top surveys are not intended for the purpose of securing intensive data but are for preliminary reconnaissance only. There is no other way by which a general idea of conditions within a large area can be obtained as quickly and as economically. This survey has given the information desired, and presented the seriousness of the situation as anticipated.

To the actual number of red-tops counted a correction factor of 33 per cent has been added to compensate the trees that were so located as not to be seen by the observer. In considering the character of this survey it will be realized that a large number of trees must have been missed by the observers, which would seem to make the above correction factor a fair one.

In computing the actual number of red-tops counted there is another factor which we are obliged to consider at this time. The season of 1928 was very long which permitted the broods in some of the early attacked trees to reach maturity and emerge and reinfest other trees late that fall. These 1928 attacked trees from which the insects had emerged the same year appeared as red-tops at the time of the survey and were very



difficult to distinguish from those which carried insect broods over the winter. Though these trees would be included in the 1928 loss, they would not be considered in computing the number of trees to be treated during the spring operation. Furthermore, during a July survey they could not be considered as potential sources for the 1929 infestation as this would give an inflated value to the loss. The number of red-tops counted has therefore been reduced by 10 per cent, which is approximately the percentage of these trees found during the 1929 control operations.

To secure an estimate of the 1929 infestation it is necessary to use the 1928 loss as a base, corrected with what is believed will be the natural increase or decrease in the infestation. The condition of the overwintering brood often serves as an indication of the course which the infestation will take. In making such a computation we are again obliged to deal with an uncontrollable factor, which is the flight mortality of the mature beetles that occurs between the time of their emergence and their attack. In consideration of all these factors it is estimated that the increase from the 1928 infestation to the 1929 will be at a ratio of  $1 : 2\frac{1}{2}$ . A table of units with corrected 1928 loss and estimated 1929 infestation based upon the red-top data follows.



Table of 1928 and 1929 Losses

| Area                                  | Corrected :<br>1928 Loss :<br>Trees : | Estimated 1929<br>Infestation<br>Trees |
|---------------------------------------|---------------------------------------|--|
| Stearns Unit                          |                                       |  |
| West Fork Stearns Creek               | 323                                   | 807                                    |
| West Fork Stearns Creek               | 236                                   | 590                                    |
| Can Creek                             | 459                                   | 1147                                   |
| Omaha Creek                           | 151                                   | 377                                    |
| Gauger Unit                           |                                       |  |
| Gauger Creek                          | 429                                   | 1072                                   |
| Magee Unit                            |                                       |  |
| Stewart and Potter Creeks             | 958                                   | 2395                                   |
| Big Elk Creek                         | 403                                   | 1007                                   |
| Yellow Dog Unit                       |                                       |  |
| Yellow Dog and Downey Creeks          | 1384                                  | 3460                                   |
| Little Guard Area                     | 741                                   | 1852                                   |
| Flat Creek Unit                       |                                       |  |
| Flat Creek                            | 432                                   | 1080                                   |
| Brett Creek Unit                      |                                       |  |
| Brett and Miner Creeks                | 259                                   | 645                                    |
| Rock City Unit                        |                                       |  |
| Rock City Area                        | 764                                   | 1910                                   |
| Little North Fork                     |                                       |  |
| Little North Fork above Cascade Creek | <u>720</u>                            | <u>1800</u>                            |
| Totals                                |                                       | 18142                                  |



### SEPTEMBER 1929 ATTACK SURVEY

To determine more accurately the severity and extent of the 1929 attacks of the mountain pine beetle in the white pine stands of the Coeur d'Alene National Forest than is estimated from the red-top data, a sample strip survey was conducted during the month of September. One hundred twelve miles of sample strip, one chain wide, were run through the most important areas of the Forest. These strips were mechanically selected in order to secure fair samples, and projected on compass lines, and the distances paced so as to secure the total acreage covered. The 1929 attacked trees within the strips were counted and recorded every ten chains. The strips were subsequently plotted on a map to show the distribution of the infestation. To secure the total number of newly attacked trees the data obtained from the strips were applied to the total white pine timber type acreage of the unit under consideration. The white pine type acreage of these units was secured from the timber type maps of the Coeur d'Alene Forest.

The time element prevented the running of strip in the Little North Fork unit, Cougar Gulch, Copper Creek, Eagle Creek, Big Creek, and the Bumble Bee drainage. It is fully realized that the data secured are totally inadequate for such a control project as is now contemplated. In the event of the proposed project being instituted a thorough and adequate survey will be made of the Coeur d'Alene National Forest during September and October, 1930. Plans and estimates have already been prepared for this work.

A summary of the data secured from the September survey follows.



Table of 1929 Attacks by Units

| Units  | Acres of:<br>Strip | 1929<br>Attacks | Acres in<br>Unit | Total New<br>Attacks |
|--|--------------------|-----------------|------------------|----------------------|
| <u>River Area</u>                                      |                    |                 |                  |                      |
| Rock City-Brett and<br>Minor Creeks                    | 170                | 42              | 9024             | 2229                 |
| Flat Creek   | 120                | 17              | 10268            | 1457                 |
| Yellow Dog and Little<br>Guard                         | 263                | 103             | 15416            | 6086                 |
| Total for area   | 553                | 162             | 34708            | 9772                 |
| <u>Stemboat Area</u>                                   |                    |                 |                  |                      |
| Stemboat and Gen. Crs.                                 | 194                | 42              | 16679            | 3610                 |
| Gen. Cr. (Red-top data)                                |                    |                 | 5033             | 377                  |
| Total for area   | 194                | 42              | 21712            | 3987                 |
| <u>Gauger Gulch Area</u>                               |                    |                 |                  |                      |
| Total for area (red-top data)                          |                    |                 | 10201            | 1072                 |
| <u>Wagon Area</u>                                      |                    |                 |                  |                      |
| Stewart-Fotter Crs.                                    | 55                 | 43              | 7415             | 5797                 |
| Big Elk Cr.  | 95                 | 61              | 2414             | 2176                 |
| Total for area   | 150                | 104             | 12829            | 9273                 |
| <u>Little North Fork Area</u>                          |                    |                 |                  |                      |
| Little North Fk. Cascade Cr. to head<br>(red-top data) |                    |                 | 20070            | 1800                 |
| Total for entire forest                                |                    |                 | 99228            | 23904                |

The foregoing table shows a total of 23,904 newly attacked trees for the entire Forest as against 13,142 infested trees as estimated from the July red-top survey data. It is felt that the data secured from the strip survey are the more reliable of the two.



For the purpose of assisting in the planning of the proposed control project a summarization and discussion of each unit follows. The camp locations have been selected so that they will lie in the more heavily infested areas. The number of trees to be treated from each camp is but an estimate, and will be subject to a rather wide variation. However, an attempt has been made to give this information.

#### LITTLE NORTH FORK UNIT

|                 |        |
|-----------------|--------|
| Acres           | 20,000 |
| Red Tops        | 500    |
| New Attacks     | 1,300  |
| Number of Camps | 4      |

Remarks: This unit averages about .05 trees per acre.

|          |              |                 |
|----------|--------------|-----------------|
| Camp #1. | 4,000 acres. | 400 new attacks |
| Camp #2. | 4,000 "      | 250 " "         |
| Camp #3. | 6,000 "      | 500 " "         |
| Camp #4. | 6,000 "      | 650 " "         |

#### Camp Locations

The first camp should be located on Cascade Creek near the mouth of Walker Creek. This would be a central location and near the heaviest infestation in the drainage. Part of the head of Barney Creek, which is the next creek north, might be worked from this camp as there is a rather low saddle between Walker Creek and one of the forks of Barney Creek.

#### Camp #2

On the Little North Fork River trail across from the mouth of Beaver Creek or near the mouth of Little Creek. This camp will not need to be as large as Camp #1 and could later be moved into the head of Barney Creek, if the ridges separating Barney and Walker Creeks prove too high for the Camp #1 crew to cross.



### Camp #1

On Iron Creek at the mouth of Cataract Creek. This would take care of Cataract Creek, Moose Creek, and Rablens Creek, and by crossing a low saddle at the head of Moose Creek the north fork of Rainey Creek in Sec. 28 could be treated. The timber in this runs into the fir type on the ridges and there are large areas of burns and reproduction.

### Camp #4

The mouth of Tom Levine Creek or Solitaire Creek; the latter would be nearer the head of the river. The timber in this area is mostly confined to the creek bottoms.

### BIG ELK - POTTER UNIT

| Acreage      | 12,829 |        | Acreage | New Attacks |
|--------------|--------|--------|---------|-------------|
| Red Tops     | 1,361  | Camp 1 | 2,400   | 1,350       |
| New Attacks  | 9,273  | Camp 2 | 2,600   | 600         |
| No. of Camps | 5      | Camp 3 | 1,700   | 1,500       |
|              |        | Camp 4 | 2,500   | 1,875       |
|              |        | Camp 5 | 3,600   | 1,000       |

### Camp Locations

### Camp #1

Located on Big Elk Creek at the mouth of Boundary Creek. This is an old trail crew camp site. It is near three trails -- the Big Elk Trail, the Lieberg Trail, and a way trail that runs to the Boundary Peak ridge where it connects with another trail that goes down into Potter Creek.

### Camp #2

Can be located on Big Elk Creek at the mouth of U. S. Creek. This will be a rather difficult location to reach. About a mile of old way trail will have to be swept out. Beavers have drained Big Elk Creek in Secs. 9 and 10, flooding the trail in many places.



Camp #3

At the junction of Stewart and Potter Creeks. This will take in a small area but one that is very heavily infested. A strip run through this area showed 1.24 trees per acre.

Camp #4

By cutting a half-mile of trail this camp can be located at the forks of Potter Creek in Sec. 32. It would be a very good location as these forks have a rather heavy infestation.

Camp #5

On Stewart Creek in Sec. 30 at the point where the trail leaves the creek.

STEARNS UNIT

(Includes the West Fork of Steamboat Creek, Can Creek and Dangle Creek)

| Acreage      | 21,712 |        | Acreage | New Attacks |
|--------------|--------|--------|---------|-------------|
| Red Tops     | 1,169  | Camp 1 | 5,000   | 675         |
| New Attacks  | 3,937  | Camp 2 | 4,000   | 650         |
| No. of Camps | 5      | Camp 3 | 4,000   | 600         |
|              |        | Camp 4 | 4,300   | 950         |
|              |        | Camp 5 | 2,000   | 300         |

Camp Locations

Camp #1

Chip Taylor's logging camp.

Camp #2

At the junction of the East and West Forks of Steamboat Creek.

Camp #3

On the West Fork of Steamboat Creek at the mouth of Confy Creek.

This camp might later be moved over into the head of Cougar Gulch by way



of a trail that runs up the West Fork and crosses the Cougar-Steambent divide one-half mile south of Teepee peak.

Camp #4

Can be placed at a trail camp site on Clay Creek.

Camp #5

It will probably be necessary to place a camp on Can Creek. An old logging road extends up this creek for about a mile and a trail follows farther up the drainage.

COUGAR GULCH AREA

|              |        |        |                 |                    |
|--------------|--------|--------|-----------------|--------------------|
| Acresage     | 10,201 |        | <u>Acresage</u> | <u>New Attacks</u> |
| Red Tops     | 429    |        |                 |                    |
| New Attacks  | 1,072  | Camp 1 | 3,250           | 575                |
| No. of Camps | 2      | Camp 2 | 6,500           | 500                |

Camp Locations

It would seem reasonable to locate Camp #1 near the mouth of Dennis Creek. The west side of Cougar Gulch at this point seems to have the heaviest infestation. This drainage is narrow but very steep. The east side runs heavily to fir and has numerous open ridges.

Camp #2

Between Dismal and October Creeks or farther up the Gulch. This drainage will have to be looked over before moving into it as little is known of the distribution of infested trees.

POUNCEBORN UNIT

|              |       |        |                 |                    |
|--------------|-------|--------|-----------------|--------------------|
| Acresage     | 5,000 |        | <u>Acresage</u> | <u>New Attacks</u> |
| Red Tops     | —     |        |                 |                    |
| New Attacks  | 500   | Camp 1 | 5,000           | 500                |
| No. of Camps | 1     |        |                 |                    |



### Camp Locations

Bumble Bee Meadows would probably be the first setting for this camp. Very little is known of this area. The estimate given for the new attacks is derived from an area of like acreage in the Cougar Gulch unit.

### YELLOW DOG UNIT

|              |        |             | <u>ACREAGE</u> | <u>NEW ATTACKS</u> |
|--------------|--------|-------------|----------------|--------------------|
| Acreage      | 15,104 | Camp #1     | 3,250          | 1,500              |
| Red Tops     | 2,125  | Camp #2     | 3,250          | 75                 |
| New Attacks  | 6,086  | Camp #3     | 3,750          | 1,850              |
| No. of Camps | 5      | Camps 4 & 5 | 4,500          | 1,250              |

### Camp Locations

#### Camp #1

Somewhere near the mouth of Ferguson Creek on the main river.

#### Camp #2

At Yellow Dog administrative site. Part of the area south of the river will be treated by this camp, providing the river can be crossed. This would increase the number of trees to be treated by this camp and decrease the number of the other camps.

#### Camp #3

Will probably be located up on Yellow Dog Creek later in the spring after the river goes down. It seems necessary to have two camps in the area south of the river, but their location will have to be decided while working from Camp #2.

#### Camp #4

On Grizzly or Downey Creek near the junction of these two creeks.

#### Camp #5

Near head of West Fork of Downey Creek.



# FLAT CREEK UNIT

|              |        |             |         |             |
|--------------|--------|-------------|---------|-------------|
| Acreage      | 10,233 |             | Acreage |             |
| Red Tops     | 129    | Camp 1      | 4,400   | New Attacks |
| New Attacks  | 1,457  | Camps 2 & 3 | 4,200   | 700         |
| No. of Camps | 3      |             |         | 750         |

## Camp Locations

### Camp #1

The Flat Creek fire camp location in the center of Sec. 5 would be a good place for Camp #1. That is about the end of the Flat Creek Trail. An old trail follows on up the creek and will probably have to be cleared out before it can be used.

### Camp #2

In the west half of Sec. 1, T. 51 N., R. 2 E.

### Camp #3

Near head of drainage. Probably N.E. corner Sec. 10.

# ROCK CITY - BRETT-MINER CREEKS

|              |       |        |         |             |
|--------------|-------|--------|---------|-------------|
| Acreage      | 9,024 |        | Acreage | New Attacks |
| Red Tops     | 1,023 | Camp 1 | 1,800   | 775         |
| New Attacks  | 2,229 | Camp 2 | 1,600   | 800         |
| No. of Camps | 3     | Camp 3 | 2,500   | 700         |

## Camp Locations

### Camp #1

Will probably be located at the mouth of Cold Creek. The drainage on the east side of the river are short and very steep. The southern exposures run heavily to Douglas fir.

### Camp #2

Could be placed on the east side of the river at the mouth of Stony Creek. An excellent trail extends along the river which makes



the short steep drainages on this side of the river very accessible to the river camps.

Camp #3

This camp could be located at the mouth of Miner Creek and could cover the Miner, Brett, and Bennett drainages.

Due to the uncertainty of high water in the Coeur d'Alene River it is not planned to cross the river by the above arrangement of camps. If it should prove possible to cross the river, the camp locations of this area would be changed. The difference would be more small camps that would cover smaller areas. Camps would probably be placed at Rock City, Miner-Bennett ridge (trail crew camp site), Brett Creek, and Cinnamon Creek.

These plans as submitted are only tentative and many changes will have to be made to meet unforeseen difficulties due to snow, high water, trails, etc. However, it is hoped that the plans may form a suitable basis from which to outline the contemplated control project.

March 12, 1930

Respectfully Submitted

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Approved

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